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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re application of

Peter K. Cheo et al

Serial No.: 09/648,918

Filed: August 25, 2000

Title: MODAL DISCRIMINATING AND LINEARLY
POLARIZED FIBER LASERS

Examiner: Tuan M. Nguyen

Art Unit: 2828

Docket No.: PC-12

RESPONSECommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450I hereby certify that this correspondence is being
facsimile transmitted to the Patent and Trademark
Office (Fax No. 703 872-9306) on

March 16, 2004.

Barbara Cacero



Sir:

This Amendment is responsive to the Final Rejection dated February 24, 2004. Claims 1-14 and 16-21 are present for further consideration.

1,2. Entry of the amendment and withdrawal of previous rejections are noted with gratitude.

3,4. Claims 1-4, 6-14 and 16-20 are rejected as obvious over Gardner. Gardner's device transmits ordinary light to an object, such as type font, and from that object back to an image detecting means. The electromagnetic radiation in Gardner is incoherent, in contrast with laser electromagnetic radiation, of the invention, which is coherent. Thus, Gardner does not meet the limitations of claim 1: line 1, "fiber laser"; line 12, "polarized output laser beam"; lines 22 and 23, "laser power coherently"; and line 23 "bright laser beam". There is no reference to "pump cladding" in Gardner and there is nothing with which a cladding could be pumped. Therefore, Gardner does not teach claim 1, line 3 "a pump cladding". All of the materials disclosed in Gardner are other than "rare earth lasing ion", and therefore Gardner does not teach those elements of claim 1, line 4.

At the top of page 3 of the rejection, in the very first three lines, the rejection is totally wrong by alleging that Gardner has "clad-pumped", "laser", "doped", and "pump cladding". None of those things are in Gardner!

With respect to a central core and additional cores, claim 1 requires in lines 8 and 9, that the additional cores and the central core are "oriented in an array along a line inclusive of the center of said cladding", and requires in lines 9 and 10 that the cores are "with long axes of said central core and said additional cores perpendicular to said line", which are not shown in Gardner. In Gardner, where there is a central core 10 and additional cores 18, the cores 18 are in a circle, and even if that be a circular line, it does not include the center of the cladding. Thus, Gardner does not hint at the language of lines 7-11 of claim 1.

Gardner does not provide an "output laser beam" as required in claim 1, line 12. Gardner does not provide "a linear polarized...beam" as required in line 12.

None of the cores in Gardner have "a load discriminating core characteristic" as required in lines 13-21 of claim 1. Gardner does not disclose that there is any variation of any sort whatsoever in any of the cores in Gardner. Since the only radiation contemplated by Gardner is incoherent, it is impossible for the "radiation in said cores to phase-lock" as required in line 22 of claim 1. There is no reference to polarization of any sort in Gardner, and therefore Gardner cannot possibly hint at "a linear polarized, bright laser beam" as called for in line 23 of claim 1. Further, Gardner does not, and cannot, teach "the fundamental in-phase supermode", since Gardner contemplates only ordinary light which is incoherent.

In Gardner, not all cores have an oblong cross section as required in line 5 of claim 1. In Gardner, there is no embodiment with a single core as called for in line 6 of claim 1. Gardner does not have more than one core disposed within a single cladding as is required by line 3 in claim 1.

What does Gardner disclose? Gardner discloses individual cores each with its own cladding, the cores having no variation therein, the cladding not being pump

cladding and there being no way to pump any of the cladding. Gardner contemplates only incoherent light and therefore has nothing whatsoever to do with lasers, particularly phase locked and polarized lasers having a fundamental in-phase supermode as required in claim 1.

With respect to claim 2, Gardner does not disclose "clad-pumped" or "laser" as required in line 1 of claim 2. Gardner does not disclose "more cores disposed within a...cladding" or "pump cladding" as required in line 3 of claim 2. Gardner does not disclose "doped with a rare earth lasing ion" as required in line 4 of claim 2. Gardner does not disclose "a single core disposed at the center of said (pump) cladding"; that is, the core 10 is not within pump cladding in Gardner. Gardner does not disclose "a modal discriminating core characteristic" of any sort as is required in lines 8-16 of claim 2. Gardner does not disclose "causing radiation in said cores to phase-lock" as required in line 17 of claim 2. Gardner does not disclose transferring "laser power coherently" as required in lines 17 and 18 of claim 2. Nor does Gardner disclose transferring "laser power...into a bright laser beam" as called for in lines 17 and 18 of claim 2. Gardner does not disclose "the fundamental in-phase supermode" as called for in line 18 of claim 2. As described with respect to claim 1, Gardner simply discloses clad cores for transmitting incoherent light.

With respect to claim 4, there is no "pump cladding" in Gardner. With respect to claim 6, Gardner neither discloses "only one core" nor "a plurality of cores oriented in an array along a line inclusive of the center of said cladding" as called for in lines 3 and 4 of claim 6. Nor does Gardner disclose that "the long axes [are] perpendicular to said line" as called for in lines 4 and 5 of claim 6. And most importantly, Gardner does not disclose "a linearly polarized...beam", nor a "laser beam", as required in line 7 of claim 6. With respect to claim 7, Gardner does not

disclose that "there is only one core" as required in line 2. Claim 8 depends from claim 2 and is patentable for the same reasons.

With respect to claim 14, Gardner does not disclose "clad-pumped" or "laser", as called for in line 1. Gardner does not disclose "the pump cladding" as required in line 3 of claim 14. Gardner does not disclose "doped with a rare earth lasing ion" as required in line 4 of claim 14. Gardner does not disclose "additional cores...oriented in an array along a line inclusive of the center of said cladding" as required in lines 7 and 8 of claim 14. Gardner does not disclose that the cores are disposed "with their long axes perpendicular to said line" as required in lines 8 and 9 of claim 14. Gardner does not disclose "optically pumped" as required in line 11 of claim 14. Gardner does not disclose a "linearly polarized...beam" as required in lines 11 and 12 of claim 14. Gardner does not disclose a "TE₀ mode...beam" as required in lines 11 and 12 of claim 14. Gardner does not disclose an "output laser beam" as required in line 12 of claim 14.

With respect to claim 16, Gardner does not disclose "plurality of cores with...the same cross sectional areas as each other of said cores." With respect to claim 20, Gardner does not disclose "pump cladding" as required in line 2 of claim 20. For all the foregoing reasons, reconsideration and allowance of claims 1, 2, 4, 6-8, 14, 16 and 20 over Gardner is hereby respectfully requested.

Claims 3 and 9-13 depend from claim 2 and are patentable for the same reasons; claims 17-19 depend from claim 14 and are patentable for the same reasons; therefore, reconsideration and allowance of claims 3, 9-13 and 17-19 over Gardner is hereby requested.

5. Claims 5 and 21 are rejected as obvious over Gardner in view of Marcatilli or Hicks, Jr. Since claim 5 refers to "pump cladding" (line 2) and there is none in Gardner, this rejection must fail. With respect to claim 21, Hicks, Jr.

discloses a "stressing member 16" but no core. Marcatilli shows a glass core surrounded by air inside of a dielectric jacket, which can't possibly relate to a pumped laser or a core which could be clad-pumped. Furthermore, claims 5 and 21 depend from claims 2 and 14 and are patentable for the same reasons. Therefore, reconsideration and allowance of claims 5 and 21 over all three references is requested.

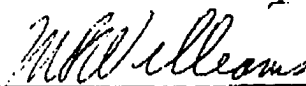
6. This action has been made final under the erroneous allegation that "Applicant's amendments necessitated the new ground(s) of rejection....". This final rejection is premature and should be withdrawn. In the previous Office Action, paragraphs 4 and 5 rejected claims 1, 2 and 14 as indefinite under -112. The amendments to the claims simply responded to the -112 rejection. Neither the subject matter nor the scope of the claims were altered.

MPEP 706.07(a) states: "...second or any subsequent actions on the merits shall be final, except where the Examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims nor based on information submitted...." And in the next paragraph, MPEP 706.07(a) states: "A second or any subsequent action on the merits in any application...should not be made final if it includes a rejection, on prior art not of record, of any claim amended to include limitations which should reasonably have been expected to be claimed....For example, one would reasonably expect that a rejection under 35 U.S.C. 112 for the reason of incompleteness would be replied to by an amendment supplying the omitted element." The present case is a fortiori – a case where the rejection on totally new references was not necessitated by amendment. No elements were added to the claim. The subject matter and scope remain the same. The finality of the rejection should be withdrawn (MPEP 706.06(d)).

Since this reply is being filed within two months of the mailing date of the final action, if the Advisory Action is not mailed until after the end of the three month shortened statutory period, then the shortened statutory period will expire on the date that the Advisory Action is mailed.

Should the foregoing not be persuasive, a telephone call is earnestly solicited.

Respectfully submitted,



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